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Wanesy Wave

Firmware update over Wi-Fi

# Wanesy Wave

## Firmware update over Wi-Fi

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Version	Edits
<b>V0.1</b>	2020-07-01 Creation
<b>V1.0</b>	2020-07-03 Release after internal review
<b>V1.1</b>	2021-02-08 Modification to match firmware v1.8.0
<b>V1.2</b>	2021-04-14 Adding HTTP connection and region configuration chapters

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## 1 Introduction

This document describes the update mechanism of the Wanesy Wave firmware over Wi-Fi, since firmware version v1.8.0. Please, read previous firmware documentation if the information is not relevant to your Wanesy Wave behavior.

Both STM32 and ESP32 firmwares can be updated over Wi-Fi.

## 2 Description of procedure

### 2.1 [Step 1] Connect to Wi-Fi SSID

The SSID broadcasted by the Wanesy Wave is unique per device.

SSID is composed of two parts:

- the static prefix : **Wave\_**
- the suffix unique per product, composed of the **6 last hexadecimal digits of the EUI**.

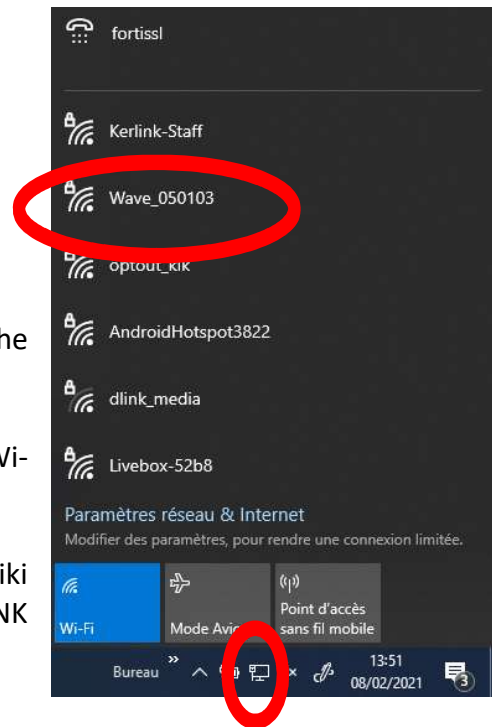
Example:

- EUI is 7076FF00690509D1
- 6 last hexadecimal digits of EUI are 0509D1
- SSID is Wave\_0509D1

EUI is written on the Wanesy Wave sticker placed on the back side of the product enclosure.

Connect to the Wanesy Wave Wi-Fi network with the Wi-Fi password.

Please read the FAQ section of the wiki <https://wikikerlink.fr/wanesy-wave> or contact KERLINK to know the Wi-Fi password.



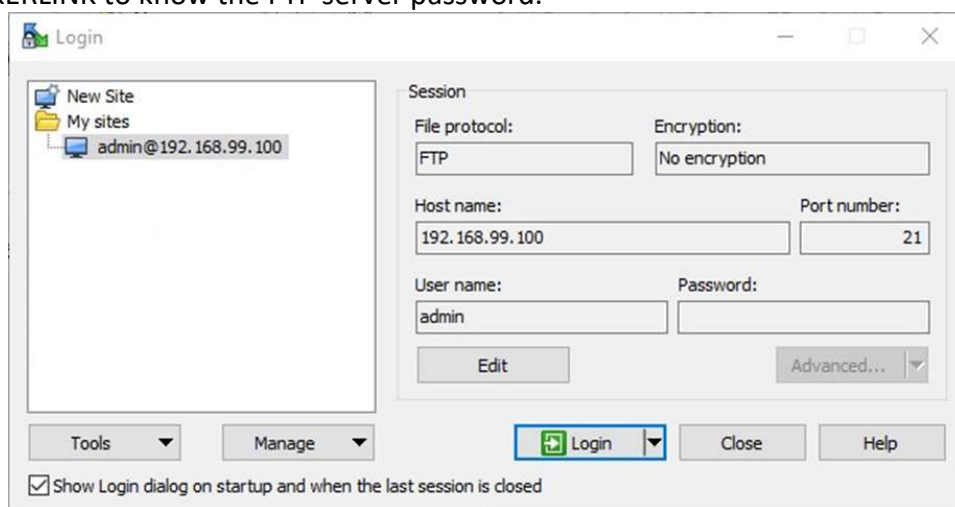
## 2.2 [Step 2] Configure FTP client

Once connected to the Wi-Fi network, open an FTP client and create a new “site” entry.

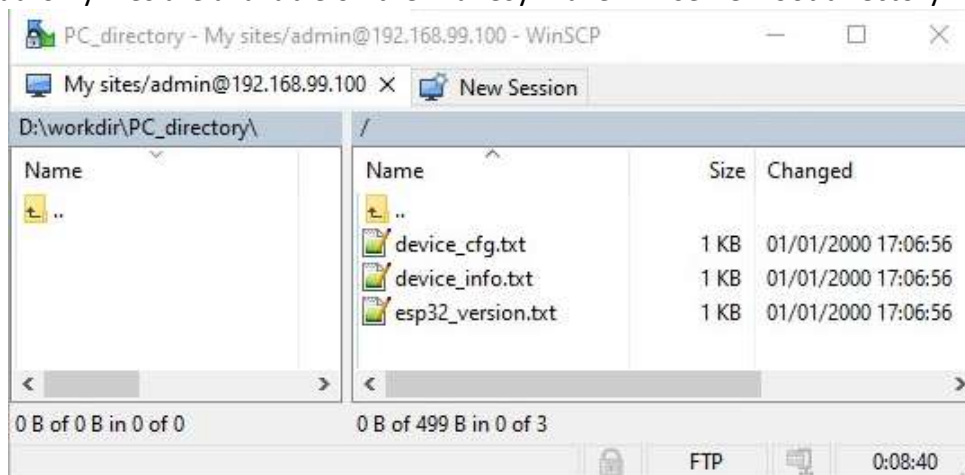
Any FTP client can be used (for example FileZilla or WinSCP), the only requirement is to use **PASSIVE MODE** connection.

The Wanesy Wave host IP address is always: **192.168.99.100**

The embedded pseudo FTP server is accessible using the following username: **admin**  
Please read the FAQ section of the wiki <https://wikikerlink.fr/wanesy-wave> or contact KERLINK to know the FTP server password.



Three read-only files are available on the Wanesy Wave FTP server root directory:



- **device\_info.txt** contains the product EUI, software region, firmware version and the LoRaWAN join status of the Wanesy Wave.
- **esp32\_version.txt** contains ESP32 firmware version and its current running partition location.
- **device\_cfg.txt** is a CBOR encoded file for internal purpose.

## 2.3 [Step 3] Update firmwares

### 2.3.1 ESP32 firmware update

In order to trigger an update of the ESP32 firmware, the firmware binary must be put or dropped (depending of the FTP client you have chosen) into the root directory of the Wanesy Wave FTP server. The root directory is a hot folder that triggers the update mechanism.

The only requirement is that the firmware name starts with “esp” (in lower case) in order to trigger and activate the correct update route in the device.

The Wanesy Wave will start automatically the ESP32 firmware update. The Wanesy Wave Wi-Fi network session will be disconnected during the operation. ESP32 firmware update should take around one minute to be completed.

After 2 minutes have elapsed, you could re-connect to the Wanesy Wave via FTP then check the file **esp32\_version.txt** to ensure that the new ESP32 firmware version has been successfully installed. See example below:

```
'Kerlink wanesywave Ver. 1.8.0' running from partition ota_1 starting @ 001E0000
```

OTA banks ota\_0 and ota\_1 are used alternatively by the update mechanism.

### 2.3.2 STM32 firmware update

In order to trigger an update of the STM32 firmware, the firmware binary must be put or dropped (depending of the FTP client you have chosen) into the root directory of the Wanesy Wave FTP server. The root directory is a hot folder that triggers the update mechanism.

The only requirement is that this filename starts with “stm” (in lower case) in order to trigger and activate the correct update route in the device.

The Wanesy Wave will start automatically the STM32 firmware update. The Wanesy Wave Wi-Fi network session will be disconnected during the operation. STM32 firmware update should take around three to five minutes to be completed.

After six minutes have elapsed, you can re-connect to the Wanesy Wave via FTP then check the file **device\_info.txt** to ensure that the new STM32 firmware version has been successfully installed. See example below:

```
7076FF0069050103,wanesywave_EU868 (ver. 1.8.0),JOINED
```

## 2.4 [Alternative] HTTP connection

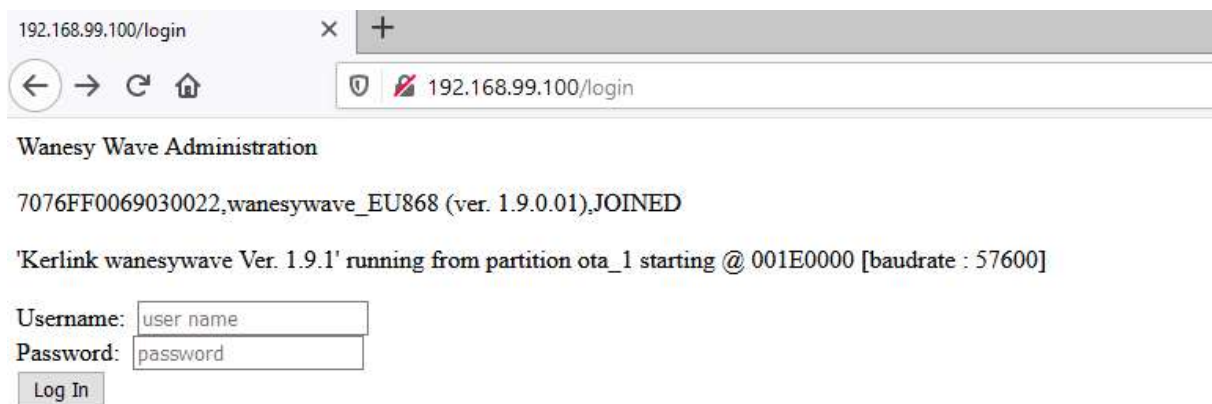
### 2.4.1 Login

Once connected to the Wanesy Wave Wi-Fi access point, open the following URL in a web browser:

<http://192.168.99.100/login>

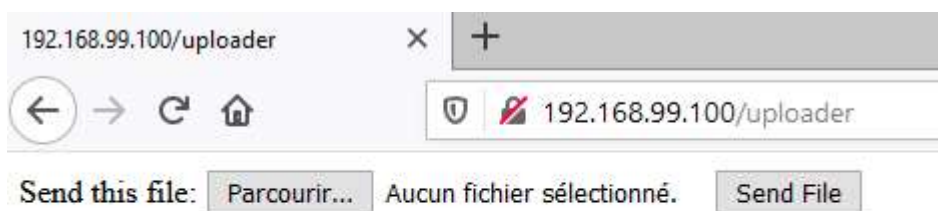
Hereafter are the contents of the login webpage.

The username and password to be used are identical to those of the FTP connection (see chapter 2.2)



### 2.4.2 Uploading a file

Once logged in onto the HTTP server, a page allowing file uploading onto the device is opened:



## 2.5 [Conf] Region configuration

Wanesy Wave is declined in two hardware architectures, “Wanesy Wave 868” and “Wanesy Wave 915”. This information can be read on the sticker on the back side of the Wanesy Waves.

Regional parameters modification is possible by sending a region configuration file matching the Wanesy Wave hardware capabilities. The region configuration file must be sent on the ftp server (winscp) or the HTTP interface of the Wanesy Wave through the Wi-Fi connection, like the firmware update files.

The default region is set in factory, and is recovered in case of factory reset of the Wanesy Wave.

Wanesy Wave 868:

- Compatible regions on “DA” hardware architecture:
- Default: EU863-870MHz
- Other possible value: IN865-867 MHz

Wanesy Wave 915:

- Compatible regions on “DB” hardware architecture:
- Default: US902-928MHz
- Other possible values:
  - AU915-928MHz
  - AS923MHz

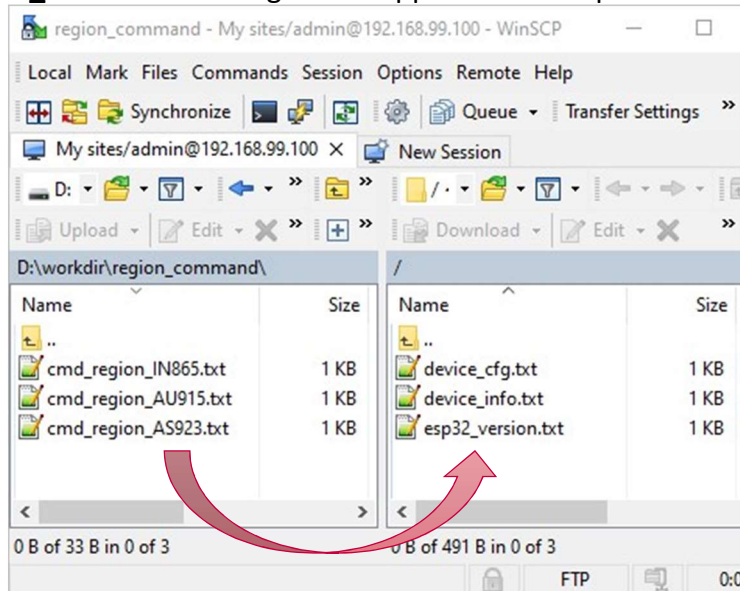
Region configuration files are available for download on the Kerlink Wiki <https://wikikerlink.fr/wanesy-wave>

Product name	Default region	Other regions	Internal name
Wanesy Wave 868	EU863-870MHz		EU868
		IN865-867 MHz	IN865
Wanesy Wave 915	US902-928MHz		US915
		AU915-928MHz	AU915
		AS923MHz	AS923



### 2.5.1 Uploading a region file

The file **cmd\_region\_\*.txt** must be drag-and-dropped into the ftp server of the Wanesy Wave:



The Wanesy Wave will reboot to apply the configuration. A loss of the Wi-Fi connection will occur, then the join request sequence will be run.

Applying an unsuitable region file leads to reset the region to its default configuration.

**Warning:** As a LoRaWAN end-device, Wanesy Wave must be declared in the appropriate region in the LoRa Network Server. If the Wanesy Wave is already declared on the LoRa Network Server before the region modification, Wanesy Wave must be deleted, then declared again in the appropriate region on the Lora Network Server.

### 2.5.2 Verification

Until the Wanesy Wave is not joined to the LoRa network server, its region parameters configuration name is displayed at the end of the file **device\_info.txt**.

```
7076FF006A030002,wanesywave_US915 (ver. 1.8.0),JOINING AS923
```

Device\_cfg.txt file is not created until join is accepted.

**End of Document**